Mr. Dennis Hughes
Pactiv Corporation
1411 Pidco Drive
Plymouth, Indiana 46563

Re: 099-13908
Significant Source Modification to:
Part 70 permit No.: T099-5969-00028

Dear Mr. Hughes:

Pactiv Corporation (formerly Tenneco Packaging AVI) was issued Part 70 operating permit T099-5969-00028 on June 28, 1999 for a stationary packaging materials manufacturing plant. An application to modify the source was received on February 13, 2001. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

(1) One (1) extruded polystyrene foam insulation board manufacturing line consisting of the following equipment:

(a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building;
(b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25;
(c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51;
(d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1) stack identified as S53;
(e) one (1) truckload staging operation, identified as ES-58; and
(f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

The following insignificant activities are also approved for construction at the source:

(a) one (1) virgin resin storage silo, identified as ES-2, exhausting through one (1) stack identified as V2;
(b) one (1) 30,000 gallon non-VOC (non-HAP) blowing agent storage tank, identified as ES-3;
(c) one (1) 18,000 gallon HAP blowing agent storage tank, identified as ES-4;
(d) one (1) reclaim resin storage silo, identified as ES-12, exhausting through one (1) stack identified as V12;
(e) one (1) railcar receiver bin, identified as ES-15, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V15;
(f) one (1) flexographic water based printer, identified as ES-116, exhausting inside the building.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This significant source modification authorizes construction of the new emission units. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call Trish Earls at (973) 575-2555, ext. 3219 or dial (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
TE/EVP
cc: File - Marshall County
Marshall County Health Department
Northern Regional Office
Air Compliance Section Inspector Rick Reynolds
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 OPERATING PERMIT
OFFICE OF AIR QUALITY

Pactiv Corporation
1411 Pidco Drive
Plymouth, Indiana 46563

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T099-5969-00028	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Quality	Issuance Date: June 28, 1999

First Significant Source Modification No. 099-13908-00028	Pages Amended: 3-6, 32a, 32b, 36a
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: **October 4, 2001**

D.1 FACILITY OPERATION CONDITIONS - Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]
D.1.2 General Reduction Requirements For New Facilities [326 IAC 8-1-6]
D.1.3 Particulate Matter (PM) [326 IAC 6-3-2(c)]
D.1.4 Cold Cleaner Degreasing Operation [326 IAC 8-3-2]
D.1.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

Compliance Determination Requirements

D.1.6 Testing Requirements [326 IAC 2-7-6(1),(6)]
D.1.7 Volatile Organic Compounds (VOC)
D.1.8 Particulate Matter (PM)
D.1.9 Recuperative Thermal Oxidizer Operations

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.10 Record Keeping Requirements
D.1.11 Reporting Requirements

D.2 FACILITY OPERATION CONDITIONS - Extruded Polystyrene Foam Insulation Board Manufacturing Line

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1-1][326 IAC 8-1-6]
D.2.2 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Compliance Determination Requirements

D.2.3 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.4 Record Keeping Requirements
D.2.5 Reporting Requirements

Certification
Emergency/Deviation Occurrence Report-----**Quarterly Report**
Quarterly Compliance Monitoring Report

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary packaging materials manufacturing plant.

Responsible Official:	Dennis Hughes
Source Address:	1411 Pidco Drive, Plymouth, Indiana 46563
Mailing Address:	1411 Pidco Drive, Plymouth, Indiana 46563
General Source Phone Number:	219-936-7065
SIC Code:	3086
County Location:	Marshall
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules Major Source, Section 112 of the Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary packaging materials manufacturing plant consists of the following emission units and pollution control devices:

(1) Three (3) profile extrusion lines, identified as PL-1, PL-2, and PL-4 respectively, using one (1) recuperative thermal oxidizer, identified as CE03, as control which exhausts to one (1) stack, identified as SC-3. Each profile extrusion line consists of the following equipment:

(a) One (1) extruder;
(b) One (1) foam profile die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-8.

(2) Two (2) enclosed foam sheet extrusion lines, identified as SL-1 and SL-2, respectively. The foam sheet extrusion line identified as SL-1 uses one (1) recuperative thermal oxidizer, identified as CE04, as control which exhausts to one (1) stack identified as SC-2. The foam sheet extrusion line identified as SL-2 uses one (1) recuperative thermal oxidizer , identified as SC-1. Each foam sheet line consists of the following equipment.

(a) One (1) extruder;
(b) One (1) foam sheet die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-1.

(3) One (1) tandem profile extrusion line, identified as PL-3, using one (1) recuperative thermal oxidizer, identified as CE03, as control which exhausts to one (1) stack, identified as SC-3 and consists of the following equipment:

(a) One (1) extruder;

(b) One (1) foam profile die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-8.

(4) Two (2) 12,000 gallon blowing agent storage tanks, resulting in fugitive emissions.

(5) One (1) extruded polystyrene foam insulation board manufacturing line consisting of the following equipment:

(a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building;
(b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25;
(c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51;
(d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1) stack identified as S53;
(e) one (1) truckload staging operation, identified as ES-58; and
(f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary packaging materials sheet and plank foam manufacturing plant also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(1) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.

(2) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to 326 IAC 20-6.

(3) The following equipment related to manufacturing activities not resulting in the emission of HAP's: brazing equipment, cutting torches, soldering equipment, welding equipment.

(4) Closed loop heating and cooling systems.

(5) Water based adhesives that are less than or equal to 5% by volume of VOC'S excluding HAP's.

(6) Paved and unpaved roads and parking lots with public access.

(7) Enclosed systems for conveying plastic raw materials and plastic finished goods.

(8) Stationary fire pumps.

(9) A laboratory as defined in 326 IAC 2-7-1(20)(c).

(10) Other activities or categories not previously identified:

Insignificant Thresholds: Activities with emissions equal to or less than thresholds require listing only
Lead (Pb) = 0.6ton/year or 3.29 lbs/day
Carbon Monoxide (CO) = 25 lbs/day
Sulfur Dioxide (SO2) = 5 lbs/hour or 25 lbs/day
Particulate Matter (PM) = 5 lbs/hour or 25 lbs/day
Nitrogen Oxides (NOx) = 5 lbs/hour or 25 lbs/day
Volatile Organic Compounds = 3 lbs/hour or 15 lbs/day

(a) Two (2) bubble pack wrap lines

(b) Heat seal on bubble pack
(c) Two (2) Kraft paper package mailer lines
(d) Plank laminator
(e) VOC emissions from the customer scrap recycling process
(f) one (1) virgin resin storage silo, identified as ES-2, exhausting through one (1) stack identified as V2;
(g) one (1) 30,000 gallon non-VOC (non-HAP) blowing agent storage tank, identified as ES-3;
(h) one (1) 18,000 gallon HAP blowing agent storage tank, identified as ES-4;
(i) one (1) reclaim resin storage silo, identified as ES-12, exhausting through one (1) stack identified as V12;
(j) one (1) railcar receiver bin, identified as ES-15, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V15;
(k) one (1) flexographic water based printer, identified as ES-116, exhausting inside the building.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary packaging materials manufacturing plant is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.2 FACILITY OPERATION CONDITIONS

(5) One (1) extruded polystyrene foam insulation board manufacturing line consisting of the following equipment:

(a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building;
(b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25;
(c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51;
(d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1) stack identified as S53;
(e) one (1) truckload staging operation, identified as ES-58; and
(f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1-1] [326 IAC 8-1-6]

Pursuant to the MACT determination under 326 IAC 2-4.1-1 and the BACT determination under 326 IAC 8-1-6, operation of the extruded polystyrene foam insulation board manufacturing line without the use of add-on controls and the following emission limitation will satisfy the MACT and BACT requirements:

(a) Total emissions of ethyl chloride/VOC from the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) shall not exceed 157.0 tons per twelve (12) consecutive month period. Ethyl chloride/VOC emissions shall be calculated as follows:

Ethyl chloride/VOC emissions (tons/yr) = (Ethyl Chloride consumed (lbs/month)) - ((Good pounds of foam (lbs/month)) * (%Ethyl Chloride retained)) X 12 months/yr X 1 ton/2000 lbs

D.2.2 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) emissions from the feed blender (ID ES-25), the fluff bin (ID ES-51), the virgin resin storage silo (ID ES-2), the reclaim resin storage silo (ID ES-12), and the railcar receiver bin (ID ES-15) shall each be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

The allowable emissions for each facility are as follows:

Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emissions (326 IAC 6-3-2) (lb/hr)

Feed Blender	confidential	5.97
Fluff Bin	confidential	2.36
Virgin resin storage silo	confidential	13.62
Reclaim resin storage silo	confidential	13.62
Railcar receiver bin	confidential	15.82

Compliance Determination Requirements

D.2.3 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

During the period within 180 days after start-up, in order to verify the emission factors used to determine the potential emissions from the extruded polystyrene foam insulation board manufacturing line, the Permittee shall perform VOC testing utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C-Performance Testing.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.4 Record Keeping Requirements

(a) To document compliance with Condition D.2.1, the Permittee shall maintain records in accordance with (1) through (3) below. Records maintained for (1) through (3) shall be taken monthly and shall be complete and sufficient to establish compliance with the ethyl chloride/VOC emission limit established in Condition D.2.1.

(1) The throughput of polystyrene foam to the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) in pounds;

(2) The weight % of ethyl chloride/VOC blowing agent in the foam; and

(3) The weight of ethyl chloride/VOC emitted for each compliance period.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.5 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Quarterly Report

Source Name: Pactiv Corporation
Source Address: 1411 Pidco Drive, Plymouth, IN 46563
Mailing Address: 1411 Pidco Drive, Plymouth, IN 46563
Part 70 Permit No.: T099-5969-00028
Facility: Extruded polystyrene foam insulation board manufacturing line
Parameter: ethyl chloride/VOC emissions
Limit: Total emissions of ethyl chloride/VOC from the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) shall not exceed 157.0 tons per twelve (12) consecutive month period. Ethyl chloride/VOC emissions shall be calculated as follows:

Ethyl chloride/VOC emissions (tons/yr) = (Ethyl Chloride consumed (lbs/month)) - ((Good pounds of foam (lbs/month)) * (%Ethyl Chloride retained)) X 12 months/yr X 1 ton/2000 lbs

YEAR: _____

Month	Weight % Blowing Agent in Foam to Fluff Bin	Fluff Bin Foam Throughput This Month (lbs)	Fluff Bin Foam Throughput Previous 11 Months (lbs)	12 Month Total Fluff Bin Foam Throughput (lbs)	Emission Factor (lb pollutant/ lb foam) for Reclaim Extruder	Reclaim Extruder Foam Throughput This Month (lbs)	Reclaim Extruder Foam Throughput Previous 11 Months (lbs)	12 Month Total Reclaim Extruder Foam Throughput (lbs)

9 No deviation occurred in this quarter.
9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Source Modification to a Part 70 Operating Permit

Source Background and Description

Source Name:	**Pactiv Corporation**
Source Location:	**1411 Pidco Drive, Plymouth, Indiana 46563**
County:	**Marshall**
SIC Code:	**3086**
Operation Permit No.:	**T 099-5969-00028**
Operation Permit Issuance Date:	**June 28, 1999**
Source Modification No.:	**099-13908-00028**
Permit Reviewer:	**Trish Earls/EVP**

The Office of Air Quality (OAQ) has reviewed a modification application from Pactiv Corporation relating to the operation of a new extruded polystyrene foam insulation board manufacturing line.

History

On February 13, 2001, Pactiv Corporation submitted an application to the OAQ requesting to add a new extruded polystyrene foam insulation board manufacturing line to their existing plant. The new line consists of the following equipment:

(a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building;
(b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25;
(c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51;
(d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1) stack identified as S53;
(e) one (1) truckload staging operation, identified as ES-58; and
(f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

The new line also includes the following insignificant activities:

(a) one (1) virgin resin storage silo, identified as ES-2, exhausting through one (1) stack identified as V2;
(b) one (1) 30,000 gallon non-VOC (non-HAP) blowing agent storage tank, identified as ES-3;
(c) one (1) 18,000 gallon HAP blowing agent storage tank, identified as ES-4;
(d) one (1) reclaim resin storage silo, identified as ES-12, exhausting through one (1) stack identified as V12;
(e) one (1) railcar receiver bin, identified as ES-15, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V15;

(f) one (1) flexographic water based printer, identified as ES-116, exhausting inside the building.

The source also requested that the company name be changed from Tenneco Packaging AVI to Pactiv Corporation. Pactiv Corporation, formerly Tenneco Packaging AVI, was issued a Part 70 permit on June 28, 1999.

Existing Approvals

The source was issued a Part 70 Operating Permit (T099-5969-00028) on June 28, 1999. No other approvals have been issued to this source since issuance of the Part 70 Operating Permit.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
V2	Virgin Resin Storage Silo	TBD	TBD	TBD	TBD
V12	Reclaim Resin Storage Silo	TBD	TBD	TBD	TBD
V15	Railcar Receiver Bin	TBD	TBD	TBD	TBD
V25	Feed Blender	TBD	TBD	TBD	TBD
V51	Fluff Bin	TBD	TBD	TBD	TBD
S53	Reclaim Extruder	TBD	TBD	TBD	TBD

TBD = To be determined.

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on February 13, 2001. Additional information was received on June 7, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (1 page).

Potential To Emit Before Controls (Modification)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

Pollutant	Potential To Emit (tons/year)
PM	11.14
PM-10	11.14
SO_2	0.0
VOC	174.37
CO	0.0
NO_x	0.0

HAP's	Potential To Emit (tons/year)
ethyl chloride	greater than 10
TOTAL	greater than 25

Justification for Modification

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of VOC is greater than 25 tons per year and the potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is equal to or greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination HAPs is greater than or equal to twenty-five (25) tons per year. Therefore, the Title V permit is being modified through a Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(g). This modification will give the source approval to construct the new emission unit. A Significant Permit Modification will be issued and will incorporate the source modification into the Part 70 permit and give the source approval to operate the new emission unit.

County Attainment Status

The source is located in Marshall County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Marshall County has been designated as attainment or unclassifiable for ozone.

Source Status

Existing Source PSD Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	less than 250
PM-10	less than 250
SO_2	less than 250
VOC	less than 250

CO	less than 250
NOx	less than 250

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

(b) These emissions are based upon the Title V permit (T099-5969-00028) issued to the source on June 28, 1999.

Potential to Emit After Controls for the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units for the modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Fluff Bin ES-51	8.87	8.87	0.0	153.3	0.0	0.0	153.3
Feed Blender ES-25	0.12	0.12	0.0	0.0	0.0	0.0	0.0
Insulation Board Extruder ES-24	0.0	0.0	0.0	2.41	0.0	0.0	2.41
Reclaim Extruder ES-53	0.0	0.0	0.0	3.76	0.0	0.0	3.76
Truckload Staging ES-58	0.0	0.0	0.0	12.49	0.0	0.0	12.49
Curing Towers	0.0	0.0	0.0	2.41	0.0	0.0	2.41
Insignificant Activities	2.16	2.16	0.0	0.0	0.0	0.0	0.0
Total Emissions	11.15	11.15	0.0	174.37	0.0	0.0	174.37
PSD Significant Modification Thresholds	250	250	250	250	250	250	N/A

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2 and 40 CFR 52.21, the PSD requirements do not apply. However, after issuance of this Significant Source Modification, the potential to emit of VOC for the entire source will be greater than 250 tons per year, therefore, the source will become a major PSD source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this modification.

(b) The one (1) 30,000 gallon non-HAP blowing agent storage tank and the one (1) 18,000 gallon HAP blowing agent storage tank are not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.110b, Subpart Kb). The 30,000 gallon tank stores a non-VOC, non-HAP blowing agent. Since this tank does not store a volatile organic liquid, it is not subject to the requirements of this rule. Although the 18,000 gallon HAP blowing agent storage tank does store blowing agent which is a volatile organic liquid, has a capacity of greater than the 10,567 gallon threshold, and was constructed after the July 23, 1984 applicability date of the rule, the tank is designed to operate in excess of 204.9 kPa and without emissions to the atmosphere, and is thus exempt from the requirements of 40 CFR 60.110b.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1-1 (New Source Toxics Control)

Pursuant to 326 IAC 2-4.1-1 (New Source Toxics Control), any new process or production unit, which has the potential to emit (PTE) 10 tons per year of any single HAP or 25 tons per year of any combination of HAPs, must be controlled using technologies consistent with the Maximum Achievable Control Technology (MACT). The proposed extruded polystyrene foam insulation board manufacturing line has potential emissions of ethyl chloride of 174.4 tons per year which is also the total HAP emissions, and is therefore subject to 326 IAC 2-4.1-1. Pactiv Corporation has performed a Case-by-Case Maximum Achievable Control Technology (MACT) review for the extruded polystyrene foam insulation board manufacturing line. Since potential ethyl chloride emissions are equivalent to VOC emissions from the line, the MACT analysis submitted with this application will also serve to satisfy the BACT requirements pursuant to 326 IAC 8-1-6.

The major sources of HAP emissions (ethyl chloride) from the extruded polystyrene foam line occur from the storage fluff bin and the reclaim extruder vent. As point sources, these could be reasonably captured and exhausted to an abatement control device. The technological and economic feasibility of controlling these emissions will be included in this analysis. Conversely, emissions that may occur from the curing towers, and the truckload staging areas are considered fugitive based on their inability to be captured and measured as per USEPA Method 204 (as per 40 CFR 51, Appendix M). To this extent, they are not included as potentially controlled point source emissions for the "end-of-the-pipe" abatement control analysis. Therefore, the MACT analysis was based on potential ethyl chloride emissions of 157.0 tons per year from the storage fluff bin and the reclaim extruder.

The first step in evaluating potential applicable control technologies involved a review of control technology determinations for the polystyrene foam industry as part of any documented major new source review technology assessments. Based on a comprehensive review of USEPA's RACT /BACT /LAER clearinghouse (RBLC) and the California Air Resource Board's (CARB) BACT clearinghouse, nineteen facilities are identified having polystyrene foam products manufacturing processes. However, none of the listed facilities manufacture extruded polystyrene foam insulation board similar to that of the proposed line to be installed at the Plymouth, Indiana Pactiv facility. Therefore, none of the control technology determinations substantiate a control technology that "demonstrates in practice" its implementation for the extruded polystyrene foam board insulation industry.

The extruded polystyrene foam board insulation manufacturing industry consists primarily of four manufacturers that produce extruded polystyrene foam at several manufacturing facilities throughout the United States. These four manufacturers are Owens Corning, Dow Chemical, Minnesota Diversified Products, and Pactiv Corporation. In order to obtain information on the permitted emission limits for each of these company facilities, data was obtained from the regulatory agencies having jurisdiction over these facilities.

Based on all of the received information as requested from the respective regulatory agencies, the available information indicates the following:

(1) No add-on air pollution control equipment has been identified on any of the extruded polystyrene foam board manufacturing lines at the identified facilities.

(2) The Owens-Corning (OC) facilities located at Tallmadge, Ohio and Rockford, Illinois apparently produce extruded polystyrene foam board insulation using no hazardous air pollutants such as ethyl chloride or methyl chloride. The OC facilities are using 100 percent HCFC-142b as the blowing agent.

(3) The Dow facilities located at Gales Ferry, CT (Allyn's Point Plant); Dalton, Georgia; Hanging Rock, Ohio; Joliet, Illinois; Pevely, Missouri; and Torrance, California utilize a mixture of HCFC-142b and ethyl chloride to produce extruded polystyrene foam board insulation.

(4) The Minnesota Diversified Foam Products facility apparently produces extruded polystyrene foam board insulation using a mixture of HCFC-142b and methyl chloride.

Based on the above findings along with Pactiv's understanding of polystyrene extrusion processes, feasible control technologies that could be potentially implemented are identified and ranked in the order of effectiveness as follows:

1) HCFC-142b
2) Thermal Oxidation - Wet Scrubber
3) Thermal Oxidation - Dry Scrubber
4) Catalytic Oxidation
5) Carbon Adsorption

6) Flares

The technical feasibility of the above identified control options are discussed as follows:

HCFC-142b

The use of 100 percent HCFC-142b as a blowing agent in place of ethyl chloride would result in the reduction of 100 percent of HAPs emitted from the extruded polystyrene foam board line (or 0 pounds HAP per pound of polystyrene foam manufactured). This is currently being achieved by the Owens Corning facilities (as best performing similar sources) producing extruded polystyrene foam board insulation with 100 percent HCFC -142b as a "non-HAP" blowing agent. However, HCFC-142b as a blowing agent for extruded polystyrene foam is currently scheduled for phase out in 2010, as required by federal regulations regarding protection of stratospheric ozone. In commenting to USEPA regarding a proposed acceleration for this phaseout to 2005, the Foamed Polystyrene Alliance (FPSA), of which Pactiv Corporation, Dow Chemical, and Owens Corning are members, indicated that there are no "drop -in," "near drop-in," or technically feasible replacements for extruded polystyrene foam blowing agents that could be used across all foam insulating sectors. As a result, Pactiv strongly believes that the usage of 100 percent HCFC-142b as the blowing agent in extruded polystyrene foam board insulation manufacturing constitutes an unachievable technology as it will be phased out in the near future.

In addition, Pactiv has reviewed the various patents that exist within the extruded polystyrene foam board manufacturing industry. Based upon this review, Pactiv believes that setting the floor to utilizing 100 percent HCFC-142b will require the proposed extruded polystyrene foam board manufacturing line at the Plymouth, Indiana facility to operate under patent(s) issued to both Owens Corning and Dow Chemical in order to operate with 100 percent HCFC -142b. Clearly, this is an extremely undesirable alternative since it requires Pactiv to pay royalties to its two major competitors in the business. Furthermore, it could place inappropriate contractual obligations on Pactiv in exchange for use of Dow's and OC's respective blowing agent delivery technologies. In this regard, recently the federal Environmental Appeals Board (EAB) has specifically stated that "individual permit applicants and permitting authorities ordinarily should not have to negotiate with owners of proprietary process technologies in order to satisfy BACT requirements" (Knauf Fiber Glass, PSD Appeal No.98-3,1999).

Given the limited usage time frame of this technology coupled with the unfair business advantage imposed on Pactiv (in having to license this technology from its competitors), HCFC -142b is eliminated as a technically feasible option.

Thermal Oxidation - Wet Scrubber System

Thermal oxidation is a widely utilized air pollution control technology for the high temperature combustion of volatile organic compounds. The most critical variables in a thermal oxidizer are the combustion zone temperature and residence time (i.e., flow rates), since these two factors determine the thermal oxidizer's ultimate destruction efficiency for a given compound. Additionally, the amount of turbulence or mixing in the emission stream also affects the destruction efficiency as well. If the emission stream contains halogenated organics, the oxidation is more difficult than those of unsubstituted organics typically requiring higher temperatures and longer residence times for complete oxidation. Thermal incinerators can achieve a wide-variety of destruction efficiencies. In this regard, Pactiv has assumed based on manufacturer specifications, that a RTO would possibly be able to achieve 95 percent control efficiency for the destruction of ethyl chloride.

The secondary combustion products from the oxidation of ethyl chloride along with HCFC -142b (also present as a blowing agent) are hydrofluoric acid (HF) and hydrochloric acid (HCl) in the exhaust stream from the RTO. In this regard, air toxics modeling was conducted to assess if the resulting emissions of HF and HCl would exceed those ambient air toxics standards established under IDEM's air toxics program. The air toxics impact modeling results indicate that uncontrolled emissions of HF result in off -site ambient concentrations that exceed 0.5% of the OSHA Permissible Exposure Limit (PEL), which is an ambient air quality exposure limit set by OSHA. Also, uncontrolled emissions of HCl result in off-site ambient concentrations that are just under 0.5% of the PEL (the source submitted details and results of the air toxics modeling with the permit application). Therefore, an acid gas scrubbing system has been incorporated as part of the abatement control technology that would be required for the primary control of ethyl chloride.

The exhaust or flue gas would exit the RTO and enter a scrubber tower quench section, a bank of spray nozzles injecting a fine spray of 50 percent caustic solution into the quench chamber. This caustic spray cools the flue gas, reducing its volume somewhat, and at the same time begins to neutralize the HF and HCl. The flue gas then continues out the top of the quench chamber and into the bottom of the packed tower for additional contact with the 50 percent caustic solution. The "spent" caustic spray in the quench section drops to the bottom of that vessel and is collected for recirculation, make-up caustic addition and blowdown.

The neutralized flue gas would then exit the top of the packed tower to the atmosphere. The liquid exiting the bottom of the packed tower section combines with the liquid from the bottom of the quench section in an enclosed hold up tank. This "spent" caustic solution is high in salts formed in the neutralization reaction and are carried out of the system by a blowdown stream and ultimately to the city wastewater system. The pH of this stream would need to be continuously monitored and maintained at a nominal pH of 7 with an automatic pH controller. A 50 percent caustic solution is pumped from an on site storage tank into the enclosed hold up tank to replenish the caustic required to maintain the neutralization reaction in the scrubber. This preliminary design calls for a blowdown rate that will keep the dissolved solids in the circulating loop and the blowdown stream at no more than 1 percent.

Even though this is a viable technology, it does appear that a pre -treatment system for the removal of entrained salts would likely be required, since the City of Plymouth does not have the current capacity to accept any additional effluents with high salt build -up. Such a system has not been included in the economic analysis. However, given the complexity that it would likely add to a RTO-Wet Scrubber Control system, the potential additional costs would be substantial. In addition, a solid/liquid waste is generated in order to neutralize the acids.

Additional operating complications come in the form of hygiene and safety issues associated with caustic handling and the acid (likely HCl) that would be kept on site for pH control of the scrubber blowdown stream. Caustic solutions in the 25 to 50 percent range and acids are very offensive to human skin and require extreme care along with extensive Personal Protective Equipment and in depth training for handling techniques, operating techniques and safety procedures. Spill prevention planning and spill containment assets and planning must become part of the plant operation.

Thermal Oxidation - Dry Scrubber

As with the wet scrubbing system described above, this dry scrubbing system is for the removal of hydrofluoric acid (HF) and hydrochloric acid (HCl) resulting from the combustion products in the exhaust stream from a Regenerative Thermal Oxidizer. The exhaust or flue gas would exit the RTO at approximately 220 deg F. The hot flue gas, which contains HCl and HF, would enter the bottom of a vertical up-flow reactor. As the gas rises through the reactor, it is contacted by powdered, dry, hydrated lime (reagent) which is injected into the reactor. The hydrated lime, Ca(OH2), reacts with the HCl and HF to neutralize these acids. This reaction produces the salts: CaCl2 and CaF2 along with un -reacted lime.

After the reaction (neutralization) phase, the flue gas and solids mixture flow out the top of the vertical reactor into a pulse-jet fabric filter dust collector. This device serves as the final particulate collection device. This unit also serves as a secondary reactor. As the dust collects and builds up on the filter bags, remaining levels of acid are neutralized before the dust is pulsed off the filter bag. The "clean" air leaves the dust collector and is discharged to atmosphere via a blower and exhaust stack.

The spent lime solids, which are un-reacted lime, CaCl2 and CaF2, drop off the filter bags into a collection hopper and are then pneumatically transferred to a silo. Trucks would be loaded from the silo to haul the waste solids to a landfill. The system would operate at an acid gas removal efficiency of 95 percent and particulate discharge emissions would not exceed 0.01 gr/dscf.

The spent lime and the entrained salts might be classified as a hazardous solid waste, depending on the results of a standard leaching test. There is no quantitative predictor for this particular process's solid waste stream as it appears on paper. The actual spent lime must be evaluated for classification. In this regard, the costing for off -site spent lime removal and handling included in the economic analysis has assumed it would be hauled as a non - hazardous material only. Further costs would need to be included if this was established otherwise.

The required fresh, powdered, hydrated lime would be stored in a silo and pneumatically conveyed to the reactor injection points. The silo would need to be periodically filled from a delivery truck. This would also require pneumatic conveying. All vents for the lime storage silo and conveying would be routed to the fabric filter dust collector described earlier.

Catalytic Oxidation

Catalytic oxidation is similar to thermal oxidation in design and operation with the exception of utilizing a catalyst to enhance the reaction rate. Since the catalyst allows the reaction to take place at a lower temperature, significant fuel savings can be realized. However, catalytic oxidizers cannot be as broadly applied as thermal incinerators since the performance of the catalyst is more sensitive to pollutant characteristics and process variables. In this regard, chlorides in the emission stream exhausting to the oxidizer will tend to poison the catalyst. Additionally, the presence of polystyrene particulates in the emissions stream will also tend to deposit on the catalyst. These deposits will form a coating which prevents contact of the VOC/HAPs with the catalyst surface and therefore greatly minimizes the effectiveness of the control. The effect of both the halogenated compounds needing to be oxidized along with particulate loading in the exhaust stream makes catalytic oxidation infeasible for its use in this application. Therefore, no further discussion of catalytic oxidation in conjunction with an alkaline scrubber is warranted.

Carbon Adsorption

Carbon Adsorption as a potential control technology for the polystyrene foam industry has been documented previously in USEPA's CTC report *Control of VOC Emissions from Polystyrene Foam Manufacturing* (EPA-450/3-90-020). Carbon adsorption is not considered a viable option for this process for two reasons. First, the adsorption capability and efficiency for ethyl chloride and 142b is unknown, so this would be a developmental system. Additionally, other carbon bed adsorption applications for similar processes have been operationally unreliable.

Performance guarantees for a carbon bed system could not be obtained due to unknown adsorption factors and desorption (regeneration) factors. Developing these factors and then designing a commercial system based on them would be a developmental venture rather than implementing proven control technology that has been demonstrated in practice. Capture and control efficiencies for the specific combination of ethyl chloride and 142b cannot be guaranteed.

Carbon adsorption is also eliminated as a preferred option for the polystyrene foam insulation board line due to concerns of reliability. This was further confirmed based on the experience at Pactiv's Canandaigua, New York polystyrene foam facility. The practical experience from Canandaigua's system has indicated that the mechanical reliability of the carbon adsorption system is poor and unacceptable. Maintenance costs have been significant due to the need to replace the carbon bed material more frequently than anticipated. Apparently, due to the erosion effect of the high air velocities, the "pellet-like" carbon deteriorates into carbon dust, which is unusable and has to be replaced frequently. The operating costs of the carbon adsorption technology have also proven to be significantly higher than for incineration technology. Additionally, the carbon adsorption system has excessive downtime, which has made air permit compliance more difficult. The effluent from the reclaim extruder vents is known to contain products of the oxidative degradation of polystyrene that adsorb on the carbon bed. This creates two problems. First, materials do not necessarily "strip" from the carbon bed at the same rate as the isopentane (or in this case, the ethyl chloride), so they can build up in the bed and eventually reduce the ability to adsorb the VOC of interest. Second, these materials will "strip" out to some extent, thus contaminating the recovered blowing agent and making its reuse in the product undesirable without some further separation process. This would eliminate the economically desirable feature of using a carbon adsorption system, namely the recovery of the blowing agent for reuse. Additionally, it is known that di-mers, tri-mers, and other short chain oligimers of styrene will be in the reclaim extruder effluent. While not HAPs or VOCs, they are known to be a nuisance and can be expected to eventually foul the carbon bed. Energy costs (production of steam for stripping) have been much higher than projected for the operation of the system. Canandaigua's system was designed to recover isopentane, which is liquid at room temperatures and can be recovered, stored and handled at atmospheric pressure. Ethyl chloride has a much lower boiling point, so the recovery and handling will have to be done in a pressurized system, thus increasing cost and complexity of an already costly and complex system. The carbon adsorption system at Canandaigua will be replaced with a regenerative thermal oxidizer as soon as capital is available. It is for the above reasons that carbon adsorption is deemed technically infeasible for application on the proposed polystyrene foam board insulation line.

Flares

The control effectiveness of flares depends on exhaust flow rates (i.e., residence time in the combustion zone), heating value content of the stream, waste gas/oxygen mixing, and flame temperature. Due to the high flow rates and low concentration of VOCs in the exhaust stream, a low net heating value of the emission stream results. In this regard, considerable supplemental fuel would need to be added in order for the flares to achieve adequate abatement efficiencies for ethyl chloride. Given the low heat value content of the exhaust stream, flares would not be a feasible technology for this application.

In summary, based on the above evaluation of technically feasible control technologies, thermal incineration coupled to an alkaline scrubber or to a dry scrubbing system are the only viable and available control technology that could be applied as abatement controls to the current application. Even though both of these technologies are unique applications having little to any precedence for extruded polystyrene foam board insulation, evaluation of the economic impact of installing such systems is warranted and is discussed below.

Economic analyses were performed for control technologies deemed feasible for the proposed extruded polystyrene foam board insulation line in determining the overall cost effectiveness of the control technology in dollars per ton of pollutant reduced. The cost analysis is based on potential ethyl chloride emissions of 157 tons per year from the fluff bin (ID ES-51) and the reclaim extruder (ID ES-53). The tables show the results of the cost analysis.

(A) Capital Cost

Option	Base Price	Direct Cost	Indirect Cost	Total
Regenerative Thermal Oxidation - Wet Scrubber*	--	--	--	2,472,000
Regenerative Thermal Oxidation - Dry Scrubber*	--	--	--	2,582,000

* Total capital cost includes base price, direct cost, and indirect cost.

(B) Annual Operating, Maintenance & Recovery Cost

Option	Direct Cost	Indirect Cost	Capital Recovery Cost	Total
Regenerative Thermal Oxidation - Wet Scrubber	1,100,267	164,896	362,799	1,627,962
Regenerative Thermal Oxidation - Dry Scrubber	828,751	153,005	378,943	1,360,699

(C) Evaluation

Option	Potential Ethyl Chloride Emissions (tons/yr)	Ethyl Chloride Emissions Removed (tons/yr)	Control Efficiency (%)	$/ton Removed
Regenerative Thermal Oxidation - Wet Scrubber	157	149	95	10,914
Regenerative Thermal Oxidation - Dry Scrubber	157	149	95	9,123

Methodology:
Emissions removed = (potential emissions from fluff bin and reclaim extruder) * (control efficiency)
$/ton removed = total annual cost / emissions removed

The cost breakdown is as follows:

1. Capital Cost
   a) Base price: purchase price, auxiliary equipment, instruments, controls, taxes and freight.
   b) Direct installation cost: foundations/supports, erection/handling, electrical, piping, insulation, painting, site preparation and building/facility.
   c) Indirect installation cost: engineering, supervision, construction/filed expenses, construction fee, start up, performance test, model study and contingencies.

2. Annual Cost
   a) Direct operating cost: operating labor (operator, supervisor), labor and material maintenance, operating materials, utilities (electricity, gas).

b) Indirect operating cost: overhead, property tax, insurance, administration and capital recovery cost (for 10 years life of the system at 10% interest rate).

Based on the magnitude of the cost estimates above, the implementation of either a RTO-Wet Scrubber or a RTO-Dry Scrubbing system would not be economically feasible for application with the installation of the proposed single extruded polystyrene insulation board line. The annualized costs of air pollution control and the costs of ethyl chloride per ton removed would consume most of the operating profit margins generated by this production line. The expected profit margin would drop from a marginal 5 percent without control to an unacceptable 1.5 percent with control. This profit margin is not acceptable and it will not support capital investment.

Given that the above technology options are not economically feasible, the maximum un-controlled emissions of ethyl chloride were modeled to assess whether ground level off -property concentrations would exceed limits established under IDEM's air toxics program. The limits set by IDEM evaluate whether air toxics exceed 0.5 percent of the Permissible Exposure Limit (PEL). These standards are set with the assumption that if off-site concentrations are found to be below 0.5 percent of the pollutant's respective PEL, that the health and welfare of the public are being protected within an ample margin of safety.

The results of the toxics modeling for un -controlled ethyl chloride emissions do not indicate any exceedance of the acceptable ambient concentration under IDEM's air toxics program. In fact ground level concentrations for uncontrolled ethyl chloride emissions result in maximum concentrations 200 times below IDEM's acceptable air toxics standard. A summary of these results is as follows:

Meteorological Data	Control Description	Potential Emissions (tpy)	Ambient Std. Max. Conc. PEL (mg/m3)	0.5% of PEL (mg/m3)	Model Results (mg/m3)
1990	Un-controlled	157	2,600	13	0.075
1991	Un-controlled	157	2,600	13	0.066
1992	Un-controlled	157	2,600	13	0.069
1993	Un-controlled	157	2,600	13	0.066
1994	Un-controlled	157	2,600	13	0.065

Therefore, no add-on air pollution controls (as also demonstrated by the best controlled similar source) is justified as MACT for the installation of the proposed extruded polystyrene foam board insulation line. Emissions of ethyl chloride from the storage fluff bin (ES-51) and the reclaim extruder (ES-53) shall be limited to 157.0 tons per twelve (12) consecutive month period. Ethyl chloride emissions shall be calculated as follows:

Ethyl chloride emissions (tons/yr) = (Foam throughput to fluff bin (lbs/hr) x Weight % ethyl chloride blowing agent in foam x 8760 hrs/yr x 1 ton/2000 lbs) + (Foam throughput to reclaim extruder (lbs/hr) x ethyl chloride emission factor for reclaim extruder (lb pollutant/lb foam) x 8760 hrs/yr x 1 ton/2000 lbs)

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) emissions from the feed blender (ID ES-25), the fluff bin (ID ES-51), the virgin resin storage silo (ID ES-2), the reclaim resin storage silo (ID ES-12), and the railcar receiver bin (ID ES-15) shall each be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The allowable emissions for each facility are as follows:

Emission Unit	Process Weight Rate (tons/hr)	Uncontrolled PM Emissions (lb/hr)	Control Efficiency %	Controlled PM Emissions (lb/hr)	Allowable PM Emissions (326 IAC 6-3-2) (lb/hr)
Feed Blender	confidential	0.03	98.00%	6.0e-04	5.97
Fluff Bin	confidential	2.02	98.00%	0.04	2.36
Virgin resin storage silo	confidential	0.15	N/A	0.15	13.62
Reclaim resin storage silo	confidential	0.15	N/A	0.15	13.62
Railcar receiver bin	confidential	0.19	99.50%	9.5e-04	15.82

The PM emissions from the above units are in compliance with 326 IAC 6-3-2.

326 IAC 8-1-6 (New facilities, general reduction requirements)

This modification is subject to the provisions of 326 IAC 8-1-6. This rule requires all facilities constructed after January 1, 1980, which have potential VOC emission rates of greater than or equal to 25 tons per year, and which are not otherwise regulated by other provisions of 326 IAC 8, to reduce VOC emissions using Best Available Control Technology (BACT). Potential VOC emissions from the proposed extruded polystyrene foam insulation board manufacturing line are greater than 25 tons per year, therefore, the modification is subject to this rule. Since potential ethyl chloride emissions are equivalent to VOC emissions from the line, and the MACT analysis submitted pursuant to 326 IAC 2-4.1-1 was performed following the guidelines as implemented in the "top down" approach used by USEPA for BACT determinations in PSD type permitting (see USEPA's draft *New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting*, dated October, 1990), the MACT analysis and determination detailed above will also serve to satisfy the BACT requirements pursuant to 326 IAC 8-1-6.

Therefore, no add-on air pollution controls (as also demonstrated by the best controlled similar source) is justified as BACT for the installation of the proposed extruded polystyrene foam board insulation line. Emissions of VOC from the storage fluff bin (ES-51) and the reclaim extruder (ES-53) shall be limited to 157.0 tons per twelve (12) consecutive month period. VOC emissions shall be calculated as follows:

VOC emissions (tons/yr) = (Foam throughput to fluff bin (lbs/hr) x Weight % VOC blowing agent in foam x 8760 hrs/yr x 1 ton/2000 lbs) + (Foam throughput to reclaim extruder (lbs/hr) x VOC emission factor for reclaim extruder (lb pollutant/lb foam) x 8760 hrs/yr x 1 ton/2000 lbs)

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

There are no compliance monitoring requirements applicable to this modification.

Changes Proposed

The changes listed below have been made to the Part 70 Operating Permit (T099-5969-00028). It should also be noted that as of January 1, 2001, the Office of Air Management is now being referred to as the Office of Air Quality. Therefore, all references to the Office of Air Management have been revised to refer to the Office of Air Quality.

1. The company name has been changed from Tenneco Packaging AVI to Pactiv Corporation. Therefore, the title page of the Part 70 permit has been revised to reflect this. All reporting forms have also been revised accordingly.

2. The words Enhanced New Source Review and the rule cite for ENSR have been removed from the title page of the Part 70 Operating permit. This rule has been repealed.

   This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 ~~and 326 IAC 2-1-3.2~~ as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

3 Condition A.1 (General Information) has been revised to include the rule cite for the definition of a major source in 326 IAC 2-7. Also, the responsible official has been changed from "Terry Smith" to "Dennis Hughes", and "County status" has been changed to "Source Location Status". This should help clarify when only portions of a county are non-attainment. A statement has also been added to specify that this source is a major source of HAPs under section 112 of the Clean Air Act.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] **[326 IAC 2-7-1(22)]**

The Permittee owns and operates a stationary packaging materials manufacturing plant.

Responsible Official:	~~Terry Smith~~ **Dennis Hughes**
Source Address:	1411 Pidco Drive, Plymouth, Indiana 46563
Mailing Address:	1411 Pidco Drive, Plymouth, Indiana 46563
General Source Phone Number:	**219-936-7065**
SIC Code:	3086
County Location:	Marshall

~~County Status~~ **Source Location Status**:

	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program
	Minor Source, under PSD Rules
	Major Source, Section 112 of the Clean Air Act

4. The new equipment has been added to section A.2. Section A.2 has been revised as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary packaging materials manufacturing plant consists of the following emission units and pollution control devices:

(1) Three (3) profile extrusion lines, identified as PL-1, PL-2, and PL-4 respectively, using one (1) recuperative thermal oxidizer, identified as CE03, as control which exhausts to one (1) stack, identified as SC-3. Each profile extrusion line consists of the following equipment:

(a) One (1) extruder;
(b) One (1) foam profile die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-8.

(2) Two (2) enclosed foam sheet extrusion lines, identified as SL-1 and SL-2, respectively. The foam sheet extrusion line identified as SL-1 uses one (1) recuperative thermal oxidizer, identified as CE0~~2~~**4**, as control which exhausts to one (1) stack identified as SC-2. The foam sheet extrusion line identified as SL-2 uses one (1) recuperative thermal oxidizer , identified as SC-1. Each foam sheet line consists of the following equipment.

(a) One (1) extruder;
(b) One (1) foam sheet die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-1.

(3) One (1) tandem profile extrusion line, identified as PL-3, using one (1) recuperative thermal oxidizer, identified as CE03, as control which exhausts to one (1) stack, identified as SC-3 and consists of the following equipment:

(a) One (1) extruder;
(b) One (1) foam profile die;
(c) One (1) curing chamber; and
(d) One (1) scrap line with an automated grinder and reclaim, identified as GR-8.

(4) Two (2) 12,000 gallon blowing agent storage tanks, resulting in fugitive emissions.

(5) One (1) extruded polystyrene foam insulation board manufacturing line consisting of the following equipment:

(a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building;
(b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25;
(c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51;
(d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1)

stack identified as S53;

(e) one (1) truckload staging operation, identified as ES-58; and

(f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

5. Section A.3 has been revised to include the additional insignificant activities:

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary packaging materials sheet and plank foam manufacturing plant also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(1) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.

(2) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to 326 IAC 20-6.

(3) The following equipment related to manufacturing activities not resulting in the emission of HAP's: brazing equipment, cutting torches, soldering equipment, welding equipment.

(4) Closed loop heating and cooling systems.

(5) Water based adhesives that are less than or equal to 5% by volume of VOC'S excluding HAP's.

(6) Paved and unpaved roads and parking lots with public access.

(7) Enclosed systems for conveying plastic raw materials and plastic finished goods.

(8) Stationary fire pumps.

(9) A laboratory as defined in 326 IAC 2-7-1(20)(c).

(10) Other activities or categories not previously identified:

Insignificant Thresholds: Activities with emissions equal to or less than thresholds require listing only

Lead (Pb) = 0.6ton/year or 3.29 lbs/day	Carbon Monoxide (CO) = 25 lbs/day
Sulfur Dioxide (SO2) = 5 lbs/hour or 25 lbs/day	Particulate Matter (PM) = 5 lbs/hour or 25 lbs/day
Nitrogen Oxides (NOx) = 5 lbs/hour or 25 lbs/day	Volatile Organic Compounds = 3 lbs/hour or 15 lbs/day

(a) Two (2) bubble pack wrap lines
(b) Heat seal on bubble pack
(c) Two (2) Kraft paper package mailer lines
(d) Plank laminator
(e) VOC emissions from the customer scrap recycling process

(f) one (1) virgin resin storage silo, identified as ES-2, exhausting through one (1) stack identified as V2;

(g) one (1) 30,000 gallon non-VOC (non-HAP) blowing agent storage tank, identified as ES-3;

(h) one (1) 18,000 gallon HAP blowing agent storage tank, identified as ES-4;

(i) one (1) reclaim resin storage silo, identified as ES-12, exhausting through one (1) stack identified as V12;

(j) one (1) railcar receiver bin, identified as ES-15, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V15;

(k) one (1) flexographic water based printer, identified as ES-116, exhausting inside the building.

6. A new section D.2 has been added to the Part 70 permit for the new extruded polystyrene foam insulation board manufacturing line. The section reads as follows:

SECTION D.2 FACILITY OPERATION CONDITIONS

(5)	One (1) extruded polystyrene foam insulation board manufacturing line consisting of the following equipment: (a) one (1) existing insulation board extruder (to replace the existing profile extrusion line (ID PL-4)), identified as ES-24, exhausting inside the building; (b) one (1) feed blender, identified as ES-25, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V25; (c) one (1) polystyrene fluff bin, identified as ES-51, with particulate matter emissions controlled by a baghouse, exhausting through one (1) stack identified as V51; (d) one (1) reclaim extruder, identified as ES-53, exhausting through one (1) stack identified as S53; (e) one (1) truckload staging operation, identified as ES-58; and (f) four (4) curing towers, together identified as ES-117, exhausting inside the building.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1-1] [326 IAC 8-1-6]

Pursuant to the MACT determination under 326 IAC 2-4.1-1 and the BACT determination under 326 IAC 8-1-6, operation of the extruded polystyrene foam insulation board manufacturing line without the use of add-on controls and the following emission limitation will satisfy the MACT and BACT requirements:

(a) Total emissions of ethyl chloride/VOC from the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) shall not exceed 157.0 tons per twelve (12) consecutive month period. Ethyl chloride/VOC emissions shall be calculated as follows:

Ethyl chloride/VOC emissions (tons/yr) = (Ethyl Chloride consumed (lbs/month)) - ((Good pounds of foam (lbs/month)) * (%Ethyl Chloride retained)) X 12 months/yr X 1 ton/2000 lbs

D.2.2 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) emissions from the feed blender (ID ES-25), the fluff bin (ID ES-51), the virgin resin storage silo (ID ES-2), the reclaim resin storage silo (ID ES-12), and the railcar receiver bin (ID ES-15) shall each be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

The allowable emissions for each facility are as follows:

Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emissions (326 IAC 6-3-2) (lb/hr)
Feed Blender	confidential	5.97
Fluff Bin	confidential	2.36
Virgin resin storage silo	confidential	13.62
Reclaim resin storage silo	confidential	13.62
Railcar receiver bin	confidential	15.82

Compliance Determination Requirements

D.2.3 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

During the period within 180 days after start-up, in order to verify the emission factors used to determine the potential emissions from the extruded polystyrene foam insulation board manufacturing line, the Permittee shall perform VOC testing utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C-Performance Testing.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.4 Record Keeping Requirements

(a) To document compliance with Condition D.2.1, the Permittee shall maintain records in accordance with (1) through (3) below. Records maintained for (1) through (3) shall be taken monthly and shall be complete and sufficient to establish compliance with the ethyl chloride/VOC emission limit established in Condition D.2.1.

(1) The throughput of polystyrene foam to the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) in pounds;

(2) The weight % of ethyl chloride/VOC blowing agent in the foam; and

(3) The weight of ethyl chloride/VOC emitted for each compliance period.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.5 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

7. A quarterly report form to document compliance with condition D.2.1 has been added to the Part 70 permit as follows:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Quarterly Report

Source Name: Pactiv Corporation
Source Address: 1411 Pidco Drive, Plymouth, IN 46563
Mailing Address: 1411 Pidco Drive, Plymouth, IN 46563
Part 70 Permit No.: T099-5969-00028
Facility: Extruded polystyrene foam insulation board manufacturing line
Parameter: ethyl chloride/VOC emissions
Limit: Total emissions of ethyl chloride/VOC from the polystyrene fluff bin (ES-51) and the reclaim extruder (ES-53) shall not exceed 157.0 tons per twelve (12) consecutive month period. Ethyl chloride/VOC emissions shall be calculated as follows:

Ethyl chloride/VOC emissions (tons/yr) = (Ethyl Chloride consumed (lbs/month)) - ((Good pounds of foam (lbs/month)) * (%Ethyl Chloride retained)) X 12 months/yr X 1 ton/2000 lbs

YEAR: _____

Month	Weight % Blowing Agent in Foam to Fluff Bin	Fluff Bin Foam Throughput This Month (lbs)	Fluff Bin Foam Throughput Previous 11 Months (lbs)	12 Month Total Fluff Bin Foam Throughput (lbs)	Emission Factor (lb pollutant/ lb foam) for Reclaim Extruder	Reclaim Extruder Foam Throughput This Month (lbs)	Reclaim Extruder Foam Throughput Previous 11 Months (lbs)	12 Month Total Reclaim Extruder Foam Throughput (lbs)

9 No deviation occurred in this quarter.
9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

Conclusion

The operation of this extruded polystyrene foam insulation board manufacturing line shall be subject to the conditions of the attached proposed **Significant Source Modification No. 099-13908-00028**.

Appendix A: Emissions Calculations
Extruded Polystyrene Foam Manufacturing Line

Company Name: Pactiv Corporation
Address City IN Zip: 1411 Pidco Drive, Plymouth, Indiana 46563
Significant Source Modification No.: 099-13908
Plt ID: 099-00028
Reviewer: Trish Earls/EVP
Date: February 13, 2001

Pollutant	Emission Unit ID	Emission Unit Description	Maximum Throughput (lb/hr)	Stack Tested Winchester, VA Unit Emission Rate (lb/lb foam)	Other Emission Factor (lb/lb)	Maximum Hourly Emissions (lb/hr)	Potential Uncontrolled Annual Emissions (tpy)	Control Device Control Efficiency (%)	Potential Controlled Annual Emissions (tpy)	
	ES-2	Virgin Resin Storage Silo #2	confidential							
PM				N/A	confidential	0.15	0.66	N/A	0.66	
PM10				N/A	confidential	0.15	0.66	N/A	0.66	
SO2				N/A		0.00	0.00		0.00	
NOx				N/A		0.00	0.00		0.00	
VOC				N/A		0.00	0.00		0.00	
CO				N/A		0.00	0.00		0.00	
Ethyl Chloride				N/A		0.00	0.00		0.00	
	ES-12	Storage Silo #12	confidential							
PM				N/A	confidential	0.15	0.66	N/A	0.66	
PM10				N/A	confidential	0.15	0.66	N/A	0.66	
SO2				N/A		0.00	0.00		0.00	
NOx				N/A		0.00	0.00		0.00	
VOC				N/A		0.00	0.00		0.00	
CO				N/A		0.00	0.00		0.00	
Ethyl Chloride				N/A		0.00	0.00		0.00	
	ES-15	Railcar Receiver Bin	confidential							
PM					confidential	0.19	0.84	99.50%	4.2E-03	
PM10					confidential	0.19	0.84	99.50%	4.2E-03	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC						0.00	0.00		0.00	
CO						0.00	0.00		0.00	
Ethyl Chloride						0.00	0.00		0.00	
	ES-51	Fluff Bin	confidential							
PM					confidential	2.02	8.87	98.00%	0.18	Based on fluff input
PM10					confidential	2.02	8.87	98.00%	0.18	Based on fluff input
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC					confidential	35.00	153.30		153.30	
CO						0.00	0.00		0.00	
Ethyl Chloride					confidential	35.00	153.30		153.30	
	ES-25	Feed Blender	confidential							
PM					confidential	0.03	0.12	98.00%	2.5E-03	
PM10					confidential	0.03	0.12	98.00%	2.5E-03	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC						0.00	0.00		0.00	
CO						0.00	0.00		0.00	
Ethyl Chloride						0.00	0.00		0.00	
	ES-24	Insulation Board Extruder	confidential							
PM						0.00	0.00		0.00	
PM10						0.00	0.00		0.00	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC					confidential	0.55	2.41		2.41	
CO						0.00	0.00		0.00	
Ethyl Chloride					confidential	0.55	2.41		2.41	
	ES-53	Reclaim Extruder	confidential							
PM						0.00	0.00		0.00	
PM10						0.00	0.00		0.00	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC					confidential	0.86	3.76		3.76	
CO						0.00	0.00		0.00	
Ethyl Chloride					confidential	0.86	3.76		3.76	
	ES-58	Truckload Staging	confidential							
PM						0.00	0.00		0.00	
PM10						0.00	0.00		0.00	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC					confidential	2.85	12.49		12.49	
CO						0.00	0.00		0.00	
Ethyl Chloride					confidential	2.85	12.49		12.49	
	ES-117	Curing Towers	confidential							
PM						0.00	0.00		0.00	
PM10						0.00	0.00		0.00	
SO2						0.00	0.00		0.00	
NOx						0.00	0.00		0.00	
VOC					confidential	0.55	2.41		2.41	
CO						0.00	0.00		0.00	
Ethyl Chloride					confidential	0.55	2.41		2.41	
Total PM						**2.54**	**11.14**		**1.50**	
Total PM10						**2.54**	**11.14**		**1.50**	
Total VOC						**39.81**	**174.37**		**174.37**	
Total HAPs						**39.81**	**174.37**		**174.37**	

Methodology:
Maximum Hourly Emissions = emission factor (lb/lb) * material throughput (lb/hr)
Potential Annual Emissions = Maximum hourly emissions (lb/hr) * 1 ton/2000 lbs * 8760 hrs/yr

Note: All PM, PM10 and VOC emission factors were obtained from other similar sources owned and operated by Pactiv Corporation.